

Severall Observations of the Respect of the Needle to a piece of Iron held Perpendicular; made by a Master of a Ship Crossing the Æquinoctial Line, Anno 1684. and communicated by M^r. Arthur Bayly. F. of the R. S.

ALL the way from *England* to 10^{d} . *North Latitude*, the *North* point of the needle respected the upper end of the *Iron*, and the *S^o*. point the lower end very strongly.

Latitude. 9^{d} . $42'$ *N^o*. and *Meridian* distance from the *Lizard* 9^{d} . $32'$ *West*. The *S^o*. point of the needle did strongly respect the lower end of the *Iron*, but the *N^o*. point did not so strongly respect the upper end as before.

Lat^d. 4^{d} . $33'$ *N^o*. and *Meridian* dist. 5^{d} . $18'$ *West* from the *Lizard*. In this *Lat^d*. the *North* point of the needle began to decline from the upper end of the *Iron*, and the *S^o*. point to incline more strongly to the lower end.

Lat^d. 0^{d} . $52'$ *S^o*. and *Meridian* dist. 11^{d} . $52'$ *West* from the *Lizard*. Here the *North* point of the needle would not respect the upper end of the *Iron*, nor the lower end neither, but the *South* point did still incline to the lower end, though not so strongly.

Lat^d. 5^{d} . $17'$ *S^o*. and *Meridian* dist. 15^{d} . $09'$ *West* from the *Lizard*. Here the *South* point of the needle would turn to the lower end of the *Iron*, about 2 points, but remove the *Iron* any further, and it would fly away from it, and respect the *Poles* again; but it would not respect the upper end at all; neither would the *North* point respect either; but lay the *Iron Horizontal*, and let the ends of the *Iron* respect the *Poles* of the

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World, and the *North* point of the needle would turn to the *South* end of the Iron, and contrarily the *South* point of the needle would turn to the *North* end of the Iron, and alter its respect to the *Poles* 5 or 6 points, and no farther; but hold the Iron perpendicular, and put the middle thereof to the needle, it would still respect the *Poles*.

Lat^d. 8^d. 17' *South*, and *Meridian* dist. from the *Lizard* 17^d. 35' *West*.

Here the N^o. point of the needle would not respect the upper end of the Iron, but rather forsake it, but the S^o. point would still something respect the lower end, and alter its true position about 2 points; but take the Iron and lay it aslope over the Compass, so that the upper end be towards the S^o. *Pole*, and the lower end to the N^o. and then the N^o. point would respect the lower end, and follow it; but if you point the upper end to the N^o. and the lower end to the S^o. the N^o. point will forsake it. But if you lay it *Horizontall*, it would do as in the foregoing Observations.

Lat^d. 15^d. 00' S^o. and 20^d. 00' *West* from the *Lizard*.

Here the S^o. point of the needle began to respect the upper end of the Iron, and the N^o. point the lower end, and follow'd it about one point; but lay the Iron *Horizontall*, and the N^o. point respected the S^o. end of the Iron, and contrarywise, &c.

Lat^d. 20^d. 20' S^o. and 19^d. 20' *West* from the *Lizard*.

Note that the S^o. point of the needle respected the upper end of the Iron, and the N^o. point the lower end pretty strongly, and follow'd it, 3 or 4 points; but lay it *Horizontall* and it would do as before.

Lat^d. 29^d. 25', and 13^d. 10' *West* from the *Merid.* of the *Lizard*.

Here the S^o. point of the needle respected the upper end of the Iron, and the N^o. point the lower end strongly.